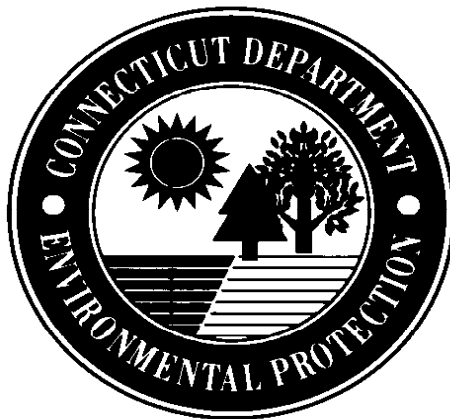


**Model Integrated Pest Management Plan For
Connecticut State Agencies**

Ornamental & Turf



**State of Connecticut
Department of Environmental Protection
Pesticide Management Program
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Arthur J. Rocque, Jr., Commissioner

The Department of Environmental Protection has developed this model plan with the assistance of the University of Connecticut Cooperative Extension Service and the Connecticut Agricultural Experiment Station to assist with the development of comprehensive integrated pest management programs at state departments, agencies and institutions as outlined in Connecticut General Statutes Section 22a-66l. Integrated Pest Management (IPM) is defined as the use of all available pest control techniques including judicious use of pesticides, when warranted, to maintain a pest population at or below an acceptable level, while decreasing the unnecessary use of pesticides.

The primary goal of IPM is to reduce the amounts of pesticides applied by using alternative methods of pest control which may include structural maintenance, sanitation and mechanical or biological control. These methods will help to eliminate conditions that are favorable to pest infestation, making their survival more difficult.

Please consult with your landscape pest control provider, University of Connecticut Cooperative Extension Service or the DEP Pesticide Management Program for technical assistance if needed.

Section 22a-66l of the Connecticut General Statutes states:

- (a) Each state department, agency or institution shall use integrated pest management at facilities under its control if the Commissioner of Environmental Protection has provided model pest control management plans pertinent to such facilities.
- (b) Each state agency which enters into a contract for services for pest control and pesticide application may revise and maintain its bidding procedures to require contractors to supply integrated pest management services.
- (c) The Commissioner of Environmental protection shall annually review a sampling of state department, agency or institution pest control management plans required by regulations adopted under section (e) of this section and may review any application of pesticides to determine whether a state department agency, or institution acted in accordance with subsection (a) of this section.
- (d) The Commissioner of Environmental Protection may provide model pest control management plans which incorporate integrated pest management for each appropriate category of commercial pesticide certification which it offers. The commissioner shall, within available resources, notify municipalities, school boards, and other political subdivisions of the state of the availability of the model plans for their use. The Commissioner of Environmental Protection shall consult with any state agency head in the development of any such plan for properties in the custody or control of such agency head.
- (e) The Commissioner of Environmental Protection, in consultation with the Commissioner of Public Health, shall adopt regulations in accordance with the provisions of chapter 54 establishing requirements for the application of pesticides by any state department, agency or institution. Such regulation shall include provisions for integrated pest management methods to reduce the amount of pesticides used. Notwithstanding the provisions of this section and any regulations adopted under this section, a pesticide may be applied if the Commissioner of Public Health determines there is a public health emergency or the Commissioner of Environmental Protection determines that such application is necessary for control of mosquitoes.
- (f) The Commissioner of Environmental Protection shall develop and implement a program to inform the public of the principles of integrated pest management and to encourage its application in private properties.

The Department of Environmental Protection is an equal opportunity/affirmative action employer, offering its services without regard to race, color, regional/national origin, age, sex or disability. In conformance with the Americans with Disabilities Act, the DEP makes every effort to provide equally effective services for persons with disabilities. Individuals with disabilities needing auxiliary aids or services should call (860) 424-3000.

**Sample Integrated Pest Management Plan For
Connecticut State Agencies
Ornamental & Turf Program**

**Facility Name
Address
Telephone Number**

Facility Name will be inspected by name of the landscaping/pest control company (LCO) for the purpose of identifying areas of pest infestation (weed, insect & disease) on the grounds of the facility, making recommendations for corrective measures that should be implemented and developing a comprehensive integrated pest management (IPM) plan. The IPM plan will utilize all methods of pest control which may include modifying cultural practices, monitoring for pest populations, mechanical and biological control and the judicious use of pesticides. If possible, pesticides will not be applied on a routine basis, however, they may be used as a tool to maintain pest populations at or below an acceptable level while maintaining plant health and aesthetic quality. The selection of pesticides that may be used will be based on a pre-determined hierarchy that will utilize least toxic products as first choice. Whenever practicable, biological controls such as predatory insects, beneficial nematodes or microbial pesticides will be used. Proper implementation of this program will reduce the volume, toxicity and frequency of application of pesticides and other chemicals, thereby reducing negative environmental impact and the risk of potential exposure of building occupants and visitors to the grounds who may be sensitive to their use.

The LCO and name of responsible individual - Contracting Officer's Representative (COR) shall meet to discuss areas that have been problematic or sensitive. (e.g.; wet, shady and/or high traffic areas or areas where there is a history of high pest pressure) Areas that are sensitive to pesticide use will also be discussed. (e.g.; daycare areas, elderly residence, work area of sensitive employees, etc.)

Once these areas have been identified, the LCO and COR will discuss various pest control options and determine the speed of control necessary as well as threshold/action levels based on pest population, species, plant health and aesthetic considerations.

Name of LCO will submit recommendations for corrective measures in writing to Name of (COR) specifying action that should be taken by the facility (e.g.; correct drainage/runoff problems) prior to the application of any pesticides. He/she is responsible for scheduling and coordinating maintenance activities at the facility and will act on the recommendations as soon as possible. He/she will report in writing which recommendations will not be followed and state the reasons if no action is to be taken as required by CSR Sec.22a-66l-1(c). Otherwise, all IPM methods that are recommended will be followed.

Pest control services will be supervised by name & certification number, and performed by name & certification number(s) of name of landscaping/pest control company & business registration number. The IPM program will begin on date with six weekly visits in order to start the program. Subsequent service calls will be performed twice a month or as needed depending upon pest pressure. Service calls will be scheduled on day of week & approx. time and involve a visual inspection of potential problem areas, with the assistance of monitoring devices where appropriate and application of pesticides where pest populations exceed threshold levels. Records will be completed at the conclusion of each service call and will include written recommendations of corrective measures that need to be made by building maintenance personnel.

Name of certified supervisor will monitor/scout the grounds of the facility at least once monthly April through September. Additional monitoring may be required during peak periods (June-August) to monitor for weeds and diseases. Off-season (October-March) monitoring may also be scheduled on an as needed basis.

All pest problem areas and written recommendations for structural, sanitary or procedural modifications will be recorded on "**Ornamental & Turf Pesticide Application Record/Monitoring Report**" forms or substantially similar substitute. These forms will be kept in a file that will be maintained in responsible individual(COR) office. Additional records that will be maintained in this file will include a copy of this plan, copies of all soil sample analysis reports, a diagram indicating the placement of all pest monitoring devices and copies of the pesticide product label information provided at the time of contract by the LCO. He/she (COR) will act as a liaison between the landscaping/pest control company and department supervisor(s) and will be responsible for notifying the appropriate personnel of corrective actions that are needed (e.g.; correct drainage and/or runoff problems).

The certified supervisor shall conduct a follow up inspection to confirm the presence of the pest(s) and verify damage level estimates prior to **any widespread application** of pesticide if the landscape/pest control technician has identified weed, insect and/or disease infestation.

Pest sighting report logs provided by name of LCO will be reviewed by the landscape/pest control technician at the beginning of each service call. The log will be maintained in responsible individual (COR) office and will serve as a tool to facilitate communication between all personnel and the landscape/pest control technician. All pest sightings should be reported in the logs and should include specific information as to the location and type of pest, if known. Whenever possible, a sample will be provided to the landscape/pest control technician for identification purposes.

Service call/monitoring inspections include list specific areas that will be inspected.

Turf Plan

Best management practices will be implemented at all times in an effort to maintain turf health and appearance. Turf will be mowed to a 2" - 3" height or as high as possible on a weekly/bi-weekly basis. Mowing should be done when the grass is dry to avoid spread of turf diseases. Mower blades should be maintained with sharp cutting edges to avoid excessive wounding and stress of the turf-grass.

Upon implementation of the IPM program and prior to the application of any fertilizer or pesticides, soil samples will be collected by the landscape/pest control technician and analyzed. Soil samples will also be collected and analyzed annually to assess soil fertility and pH. Annual sampling will be performed in late fall or early spring after the frost has left the ground. Amendments will be made to the soil as recommended by the analysis reports. Proper soil pH and fertility will help to prevent many turf-grass diseases and promote plant vigor, thereby reducing the occurrence of insect and weed invasion.

When practicable, organic fertilizers may be used, otherwise, fertilizer with 50% slow release nitrogen shall be utilized. Fertilizer should be applied no later than October 15. Late fall applications of lime will be avoided if possible to reduce the risk of **snow mold**. Over-fertilization may result in an increase of some plant diseases, more frequent mowing, increased thatch layer and risk of leachate into groundwater in some circumstances.

Proper management of grass clippings is an important part of maintaining the lawn. Grass clippings will remain on the lawn and allowed to degrade, returning 50% of available nitrogen back to the lawn. This will help to increase the soil organic matter and promote beneficial earthworm activity.

Watering may be done once a week to a depth of 6" between the hours of **5:00 am and 8:00 am**. The second best time to water is late evening/early morning after the dew has fallen. Watering in the evening is not recommended on hot, humid nights because it may increase the occurrence of diseases. **Necrotic ring spot and summer patch** may be prevented by keeping the upper soil layers moist.

A thatch layer up to 1/2-3/4 inches thick is beneficial. An excessive layer is undesirable because it will block moisture, fertilizers and/or pesticides from reaching the root zone of the turf. Over-development of thatch can be prevented by reducing fertilizer applications and maintaining proper soil pH. If de-thatching is necessary, it will be done mechanically during the spring or late summer (September) when grasses are actively growing and can recover faster.

Fertilizer applications should be performed when grasses are actively growing, usually late May/early June and late August/early September. Fertilizer applications will not exceed 2-2 1/2 pounds of nitrogen per 1000 square feet per year unless soil sample analysis reports indicate a necessity to further amend the soil.

Turf Insects

Visual inspection of the turf areas will be done monthly, April through September, by the certified supervisor to monitor for evidence of chinch bug, sod webworm, billbug and/or other destructive turf pests. Additional sampling may be performed to confirm the presence of these pests and/or White Grubs.

Applications of insecticide to turf areas will be limited in an effort to preserve populations of beneficial insects and nematodes. Pesticide application will be considered if monitoring indicates the following pest populations or up to 20% damage can be anticipated.

- | | |
|---|---|
| 1) White Grubs | 10 Larvae/square foot |
| 2) Chinch Bug | 30 - 50 Nymphs & adults/square foot or when damage is evident |
| 3) Sod Webworms/Cutworms | Areas will be treated only when damage is evident. |
| 4) Hyperodes weevil (annual bluegrass weevil) | tolerance |
| 5) Black turfgrass ataenius | tolerance |
| 4) Ticks | tolerance |

_____ or _____ contact insecticides can be applied to control Japanese beetle, European chafer, Masked chafer, Oriental beetle and/or Asiatic garden beetle or other beetle species during late August/early September when larvae are present.

_____ will be applied to control chinch bug, billbug and sod webworm when damage is evident. (Damage periods normally occur during hot, dry weather - late June/July/early August).

Weed Control

A lawn area that is properly managed should produce dense, thick turf-grass, which ideally will help to prevent invasive weed species from getting established. Some weed growth should be anticipated, and tolerated to some degree. Widespread applications of broadleaf herbicides will not be performed unless weed species have invaded greater than **25%** of the entire turf area. Spot applications will be performed to small areas on an as needed basis.

_____ or _____ may be applied as a spot application to control annual and perennial broadleaf weeds in the turf. The same product(s) may be applied when and if a widespread application of pesticides is deemed necessary.

Over seeding the area in late summer/early fall with improved turf-grass and raising the mower height during the growing season will help to prevent crabgrass encroachment. _____ may be applied as a post-emergent crabgrass control only when cultural practices have failed and providing that the area is not widespread. This will prevent problems with soil erosion in areas where the crabgrass has been killed off. _____ pre-emergent herbicide, may be applied the following season to help prevent redevelopment of crabgrass.

_____ or _____ may be applied as a spot application to control invasive annual grasses. The same product(s) may be applied when and if a widespread application of pesticides is deemed necessary.

A complete re-evaluation of any area requiring a broad application of pesticide will be performed by name of certified supervisor to assess and re-implement proper cultural practices to maintain turf density and vigor.

Disease Management

Pesticide applications for control of turf diseases will be performed only if evidence of disease has been found and significant areas (**10-15% of the total turf area**) of permanent damage can be anticipated and all proper cultural practices have been employed. Name of Certified Supervisor will discuss pest control options with Name of COR to determine the appropriate course of action.

Flower Beds & Formal Landscaping

Best management practices will also be followed for the care and management of all flowerbeds and ornamental plantings. Insect and disease resistant plant varieties will be selected for planting in any flowerbeds and/or formal landscaping areas whenever possible. The landscape/pest control technician will visually inspect plants for insect and/or disease infestation prior to planting. Plants found to have any infestation will be rejected in an effort to eliminate damage on a large scale. Plants will be planted at the proper depth to avoid plant stress. Mulch will be placed in all garden areas and around individual trees and shrubs. Mulch materials will be placed at sufficient depth to reduce weed growth and help to retain moisture. Mulch placement will also be placed to provide a buffer area to eliminate mechanical damage which may result from use of string trimmers or mechanical edgers.

Foundation plantings and vines will be trimmed at least 12" away from the building to eliminate rodent harborage and access to the building and allow for monitoring of rodent activity.

The landscape/pest control technician will remove and dispose of dead and dying vegetation from plants and plant beds (*monthly*) to prevent spread of disease. Leaves will also be raked away to prevent accumulation and development of rodent harborage. Branches and plant material will be properly disposed of at the end of each day that work has been performed.

Ornamental Insect Control

Visual inspections will be conducted during routine maintenance activities and pest monitoring traps will be utilized, where appropriate, to indicate the presence of harmful pests. Wherever pest activity is found and if practicable, infested plant(s) or branches will be washed off using a strong stream of water or removed and properly disposed of.

In an effort to preserve beneficial and predatory insects, pesticides will be applied only on an as needed basis. Application of pesticide may be considered if it is anticipated that pest activity will result in unacceptable levels of damage to ornamental plants. For this facility, up to **15%** damage or defoliation to ornamental plants will be considered acceptable.

Pesticide application will be limited to only the infested area(s). General applications of pesticides will not be done. Bio-insecticides, insecticidal soaps, dormant oil or summer oil will be utilized if possible. The timing of each application will be based first on whether the pest is present and causing damage, the pest life cycle and at what stage the pest is most vulnerable to pesticides.

Preventive pesticide applications may be performed only to areas where the previous year's monitoring has shown evidence of insect pests which may over-winter on ornamental plants.

Weed Control

_____ may be applied as a pre-emergent weed control in annual flower beds and ornamental shrub gardens. Pre-emergent weed control may also be used in perennial flower gardens where pesticide labeling allows. _____ may be used for post-emergent spot applications. Where practicable, hand weeding will be performed in flower gardens and areas of ornamental plantings on a limited basis due to labor expenses. Borders and walkways will be edged using a string trimmer or mechanical edger.

Disease Management

Pesticide applications for control of ornamental diseases will be performed if evidence of disease has been found and significant areas (**15% or greater**) of permanent damage can be anticipated and all proper cultural practices have been employed.

Preventive pesticide applications may only be performed when the previous year's monitoring has indicated a likelihood of disease or if certain plant species, prone to disease problems, are present. Preventive applications should be made only to specific problem areas

Name of Certified Supervisor will discuss pest control options with Name of COR to determine the appropriate course of action.

*****Pesticide applications will be performed after regular business hours or on the weekend when the building is unoccupied.*****

Pesticide Plan

Pesticides may be applied if pest populations exceed an acceptable level. Applications will be performed after regular business hours or on the weekend when the building is unoccupied. Priority is given to those pesticides having the lowest toxicity, taking into consideration the method and frequency of application and the risk of exposure to building occupants. Whenever practicable, biological pest control such as predatory insects, beneficial nematodes or microbial pesticides will be utilized. Pesticides selected for possible use are as follows;

First Choice (*Products having the lowest toxicity and/or least risk of exposure based on the formulation, method and frequency of application.*)

Turf Herbicides

- a)
- b)
- c)

Turf Insecticides

- a)
- b)

Ornamental Insecticides

- a)
- b)
- c)

Second Choice (*Products having moderate toxicity and/or risk of exposure based on the formulation, method and frequency of application.*)

Turf Herbicides

- a)
- b)

Turf Insecticides

- a)
- b)

Ornamental Insecticides

- a)
- b)
- c)

Third Choice (*Products having moderate to high toxicity and/or risk of exposure based on the formulation, method and frequency of application.*)

Use of any third choice pesticide product requires written approval of COR prior to application

Turf Herbicides

- a)

Turf Insecticides

- a)

Turf Fungicides

- a)
- b)

Ornamental Insecticides

- a)
- b)

Ornamental Fungicides

- a)
- b)

An appraisal of this IPM program will be conducted bi-monthly by *responsible individual (COR)* and *name of certified supervisor*. A determination will be made as to the effectiveness of the program and revisions will be made to correct potential problems.

An evaluation of the potential to contaminate water will be made. Maps will be copied from the "Atlas of the Public Water Supply Sources and Drainage Basins of Connecticut" which identify the location of any public water supply, watershed or wellfield and will be attached to this plan as required by CSR Section 22a-66l-1(6)(F).

09/24/99

IPM Monitoring Form

Ornamental Checklist

Site/ Area	Host Plant	Size	Stage	Pest	Stage	Damage Site	Damage Level	Natural Enemies	Control Action

Key to Codes:

Host Plant Size:	Host Plant Stage:	Pest Stage:	Damage Site:	Damage Level:	Natural Enemies:	Action:
< 1ft. Seedling=1	seedling=2	egg=1	bark=1	none(0%)=0	rare=1	no action=1
1-3 ft. tall=2	budding=3	early instar=2	bud =2	trace (<5%)=1	few=2	mechanical=2
3-6 ft. Tall=3	flowering=4	late instar=3	flower=3	light (5-10%)=2	common=3	cultural=3
6-8 ft. Tall=4	fruiting=8	pupa=4	fruit=4	moderate (10-30%)=3	abundant=4	biological=4
> 8 ft. Tall=5	leafing out=9	adult=5	foliage=5	heavy (30-90%)=4		chemical=5
	mature=10	damage only,	miner = 6	total damage (100%)=5		
	dormant = 11	past damage=6	borer = 7			
			roots=8			
			general dieback=9			
			gall=10			

Turf Checklist

Recommendations

Turfgrass Species Present	Kentucky Bluegrass_____ Tall Fescue_____ Perennial Ryegrass Fine Leaf Fescue_____ Other:_____		
Lawn Establishment	Age:_____ Seed:_____ Sod:_____ Sun:_____ Shade:_____		
Thatch Accumulation	_____ < 1/2" _____ 2 to 1" _____ > 1"		
Turf Density	Thick (TK) Thin (TN) Moderately Thick (MTK) Sparce (SP)		
Turf Color	Dark Green (DG) Light Green (LG) Yellow Green (YG) Turf Dormant (TD)		
Soil	Texture:_____ Depth:_____ Condition:_____		
Weeds	Dandelion_____ Crabgrass_____ Plantain_____ Oxalis_____ Spurge Knotweed_____ Ground Ivy_____ Yellow Nutsedge_____ Other:_____		
Insects	_____ Avg.No./Sq. Ft. _____ Avg.No./Sq. Ft.	_____ Avg.No./Sq. Ft. _____ Avg.No./Sq. Ft.	
Disease	Affected Species:_____ %Area of Turf Infected_____ Affected Species:_____ %Area of Turf Infected_____ Disease:_____ Disease:_____		
Cultural Practices	Mowing:_____ Watering:_____		

Comments:

Ornamental & Turf Pesticide Application Record

Service Location	Servicing Company	
		B-

Date:	Supervisor:	Certification No.
Time In: Out:	Operator:	Certification No.

Specific Recommendations/Actions Needed (See also - inspection report)

Pesticide Application Record				
Pesticide Formulation	Rate/Acre	Amount Applied/Dilute	Target Pest	Area Treated (Sq. Feet)

[illegible]